



Understanding Labor Force Statistics

by Richard Reinhold

Labor force statistics, including unemployment rates, are among the most frequently requested types of labor market information, but few understand how they are produced and what they actually describe. The following is a summary of key labor force concepts and definitions as well as an abbreviated description of national, state and sub-state labor force methodology. The subject matter has been simplified as much as possible while still including the detail necessary to adequately describe the definitions and methods behind national, statewide and sub-state labor force estimates.

What are labor force statistics?

The labor force refers to all civilian, non-institutionalized, working-age individuals (age 16+) who were employed or without a job but available and actively looking for work. The time period for estimation is known as the reference week, is usually the week including the 12th of each month.

The employed include those workers who did any of the following during the reference week:

- worked at least one hour for pay or profit;



- were temporarily away from work due to reasons such as labor disputes, vacation, or illnesses;
- worked at least 15 unpaid hours in a family business.

No distinction is made among those who worked full-time or part-time, are self-employed or receive government assistance while working. Those holding multiple jobs during the reference week are counted just once as employed.

The unemployed include those who:

- lost their jobs involuntarily;
- quit their jobs;
- entered the labor market for the first time or have re-entered the labor market after a period of absence;
- have been laid off but expect to be recalled.

The unemployment rate is the number unemployed expressed as a percent of the total civilian labor force (unemployment rate = unemployed/ labor force X 100)

Those not counted as either employed or unemployed are classified as not in the labor force. This category includes people who want a job and those who don't want a job. Examples of people who are not in the labor force but aren't interested in working include students, homemakers, and retirees. People who want a job but have stopped looking for work include those who are discouraged over their job opportunities or who face barriers to entering the labor market, such as inadequate transportation or child care assistance.

How are labor force statistics produced?

Methods for estimating labor force statistics at national, state, and sub-state (e.g. metropolitan areas, counties and cities) levels differ; but in all instances, there is uniformity in terms of definitions of employed and unemployed. This uniformity allows for comparisons among the nation, states and sub-state areas.

National Labor Force Statistics

National labor force statistics are developed through a monthly household survey, known as the Current Population Survey (CPS), conducted by the U.S. Bureau of the Census for the U.S. Bureau of Labor Statistics (BLS). Approximately 60,000 eligible households across the nation are surveyed each month and all working age (16+) residents are asked a series of questions to obtain specific information regarding their employed status during the reference week. Based on their responses, individuals are then placed into three categories:

1. employed,
2. unemployed, and
3. not in the labor force

Additional steps are taken to adjust for population, non-respondents and sampling error. For more information on the CPS, please visit <http://www.bls.gov/cps>

Statewide Labor Force Statistics

Labor force statistics for all states, including Illinois, are developed under a Federal-State cooperative program known as Local Area Unemployment Statistics (LAUS). Statewide labor force data are not measured directly from the CPS (as is the case with national labor force data) because the household sample at the state level is too small. Instead, statewide employed and unemployed estimates are derived indirectly through BLS-designed time series models.

The statewide employment and unemployment models rely on historical relationships among monthly

data from the state portions of the CPS, as well as, state total nonfarm payroll jobs and Unemployment Insurance (UI) claims reported for the reference week. The primary objective of the statewide models is to remove error from the monthly CPS and arrive at “true” labor force estimates. Components in the statewide employment and unemployment models are allowed to change gradually over time to account for long-term and seasonal differences between the CPS and statewide total nonfarm jobs and UI claims data.

In addition, monthly statewide employed and unemployed estimates are controlled or forced to sum to Census Division levels, which are in turn controlled to national employed and unemployed levels. These controls ensure that the sum-of-states equals the nation and that large changes in the national economy are reflected in statewide estimates.

Monthly statewide labor force estimates are also smoothed each month to reduce volatility from the CPS that had not

already been removed by the statewide models. The smoothing procedure incorporates information from model estimates for the data reference month as well as prior months.

At the beginning of each year, monthly statewide labor force estimates developed in prior years are updated to reflect revised statewide nonfarm jobs, UI claims, non-institutional working-age population estimates. The monthly statewide employed and unemployed estimates are also adjusted to reflect updated CPS employed and unemployed controls at the Census Division and national levels as well as additional smoothing to capture information from model estimates reported before and after the data month.

Sub-state Labor Force Statistics

The LAUS program is also responsible for developing labor force statistics for sub-state regions, such as Metropolitan Areas, counties and cities. Like statewide estimates, substate estimates

are not taken directly from the CPS but instead developed indirectly, using the steps described below.

Area Labor Force Models

Six states, including Illinois, use BLS time series models to develop monthly labor force statistics for their largest Metropolitan Area and the remaining portion of their state, also known as the balance of state. The Chicago-Naperville-Arlington Heights Metropolitan Division and the balance of Illinois area models are similar to the statewide labor force model described earlier. That is, they are also based on current and historical CPS data relationships and incorporate monthly nonfarm jobs and UI claims inputs.

Employed and unemployed estimates developed in the Chicago Metropolitan Division and balance of Illinois area models are controlled to employed and unemployed estimates from the Illinois LAUS model, ensuring that they sum to statewide levels. Also, like statewide labor force estimates, Chicago Metropolitan Division and the balance of Illinois labor force model estimates are smoothed each month to reduce monthly volatility from the CPS. At the beginning of each year, historical labor force estimates for Chicago and the balance of Illinois are revised to reflect updated nonfarm jobs, UI claims inputs, non-institutional working-age population estimates as well as new statewide additivity controls and additional smoothing.

The Handbook Method

The Handbook method, also sometimes referred to as the building-block method, relies on a variety of data



inputs supplied by states and the BLS. Chief among them are total monthly nonfarm jobs; monthly state, federal, and railroad program Unemployment Insurance (UI) claims; employed and population data from the U.S. Census Bureau's American Community Survey (ACS); and monthly statewide controls based on data from the CPS. There is a total of 16 Handbook steps which produce preliminary estimates of employed and unemployed for each of the 102 counties in Illinois.

Total Handbook employed is divided between employment covered and not covered by Unemployment Insurance laws. Employment covered by UI (about 98 percent of jobs) is estimated by converting total nonfarm jobs to the number of people employed using residency adjustment factors; these factors adjust for worker commuting, multiple job holding and unpaid leaves of absence. The residency adjustment factors reflect the latest 5-year county commuting data from the ACS and average total nonfarm jobs for each county during the same five-year time period. Labor disputants are included in employed totals before residency adjustments are made.

The primary source for the non-covered employed (including agricultural workers, the self-employed, unpaid family workers and private household workers) is the ACS. County-to-state ratios of ACS employed for these non-covered groups are applied to weighted average statewide agricultural workers, the self-employed, unpaid family workers and private household workers employment estimates from the CPS to arrive at monthly county non-covered employed estimates.

Handbook unemployed is also divided between UI covered and non-UI covered persons. UI claims are used to estimate those unemployed who are currently receiving UI benefits as well as those who have exhausted UI benefits but are still unemployed. The unemployed who are not covered, such as entrants to the labor force, are estimated separately. Labor force entrant unemployed is disaggregated from BLS produced statewide entrant totals using annual county-to-State ratios of population for youth (ages 16-19) and adults (age 20 and older) from the U.S. Census Bureau. These annual ratios are applied to weighted average statewide labor force entrant unemployed estimates from the CPS to arrive at monthly county labor force entrant unemployed estimates.

Additivity Adjustment

Additivity refers to process by which county Handbook estimates are adjusted proportionally so that they sum to statewide or area model estimates. These adjustments ensure that sub-

state LAUS employed and unemployed estimates reflect all employed and unemployed including those groups not fully captured in Handbook employed and unemployed calculations, especially the nonfarm wage and job holders who are not covered by UI laws and the unemployed who are ineligible for UI benefits.

In Illinois, monthly Handbook employed and unemployed for the counties in the Chicago Metropolitan Division are adjusted proportionally to sum to monthly employed and unemployed estimates produced in the Chicago Metropolitan Division LAUS model. Handbook estimates for Illinois counties outside the Chicago Metropolitan Division are controlled to employed and unemployed estimates produced in the balance of Illinois LAUS model. In most other states, county employed and unemployed estimates are controlled directly to statewide employed and unemployed model estimates. But since we use area models in Illinois, this approach is not possible.



Summation of Counties to Multi-County Areas

Once county employed and unemployed estimates are adjusted for additivity to either the Chicago Metropolitan Division or the balance of Illinois area, they are summed to larger geographic areas that with multiple counties. These areas include Combined Statistical Areas, Metropolitan Areas and Micropolitan Areas, which are federally designated, as well as Illinois designated areas such as Economic Development Regions and Local Workforce and Innovation Areas. County estimates from border states are added to Illinois county estimates to produce interstate Metropolitan and Micropolitan Area estimates. For a description of Illinois Metropolitan and Micropolitan Areas, please see http://www.ides.illinois.gov/LMI/ILMR/Changes_to_MSA.pdf

Calculating City Estimates through Disaggregation of Counties

City LAUS estimates are produced by sub-dividing or disaggregating county LAUS employed and unemployed estimates. LAUS employed is allocated to by applying city-to-county employment-population disaggregation ratios, which are updated annually. The employment-to-population disaggregation ratios are produced using city and county employment and population data from the ACS, as well as the most recent city and annual city and county population estimates from the U.S. Census Bureau.

LAUS unemployed at the city-level includes two categories: job losers and leavers (some whom have received UI benefits) and unemployed labor

force entrants. Unemployed among the job losers and leavers category is disaggregated based on city-to-county ratios of total UI claims. The unemployed labor force entrant component of the unemployed is disaggregated based on annual city-to-county ratios of population for youth (ages 16-19) and adults (age 20 and older). Total unemployed equals the sum of job losers/leavers and labor force entrant unemployed.

Annual Revisions to Sub-State Labor Force Estimates

At the beginning of each year, monthly Handbook employed estimates are updated to incorporate revised nonfarm jobs estimates, as well as new CPS statewide controls and ACS employment inputs for agricultural workers, the self-employed, unpaid family workers and private household workers. Handbook unemployed is updated with revised monthly UI claims inputs and new age group population ratios for allocating statewide labor force entrant unemployed to counties. Also, county LAUS estimates are controlled to sum to revised Chicago Metropolitan Division or balance of Illinois employed and unemployed estimates.

Monthly LAUS employed for cities are revised with new city-county employment-population disaggregation ratios, reflecting the latest annual city and county population estimates and, during some years, updated employment or population inputs from the ACS. LAUS unemployed for cities are revised due to updates to monthly UI claims and annual city-to-county age-group population ratios. City unemployed LAUS estimates are also controlled to sum to either Chicago Metropolitan

Division or balance of Illinois employed and unemployed estimates.

Publication of LAUS Estimates

In Illinois, we publish monthly and annual LAUS estimates for the State, Metropolitan Areas, Combined Statistical Areas, Micropolitan Areas, all 102 counties and cities with at least 25,000 residents, as well as Local Workforce Innovation Areas and Economic Development Regions. These data are available on-line at http://www.ides.illinois.gov/LMI/Pages/Local_Area_Unemployment_Statistics.aspx

In addition to publishing monthly national labor force estimates from the CPS, the BLS also publishes monthly LAUS estimates for about 7,000 geographic areas: Census Regions and Divisions, States, Metropolitan Areas, Combined Statistical Areas, Small Labor Market Areas, counties, cities with a total population of 25,000 or more and New England cities and towns with a population of 1,000 or greater. Labor force estimates published by the BLS are available on-line at <https://www.bls.gov/lau>

Frequently Asked Questions about Labor Force Data

A comprehensive list of frequently asked questions or FAQs related to labor force data can be found at the BLS web site <https://www.bls.gov/lau/laufaq.htm>.

Richard Reinhold is the Manager of IDES' BLS Programs